

Joint Meeting of the NIC and PERB Capital Market Assumptions

November 2017

Aon Hewitt
Retirement and Investment

Investment advice and consulting services provided by Aon Hewitt Investment Consulting, Inc., an Aon Company.

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Capital Market Assumptions

- What are they?
 - Aon Hewitt's asset class return, volatility and correlation assumptions
 - Long-term; based on 10-year and 30-year projection periods
 - Forward looking assumptions
 - Best estimate assumptions (50/50 better or worse)
 - Market returns; i.e., no manager alpha (other than hedge funds and private equity which are entirely actively managed)
 - Global geographic coverage
 - Updated quarterly

Coverage

| Equities | Bonds | Alternatives |
|--|--|-------------------------------------|
| All major regions covered including emerging markets | Nominal U.S. and non-U.S. government bonds | Hedge funds |
| | Inflation-linked government bonds | Real estate (total market and core) |
| | Corporate bonds | Private equity |
| | High yield | Infrastructure |
| | Emerging market debt | Commodities |

Current Assumptions (10-Year): Expected Returns and Volatility (as of June 30, 2017)

| Asset Class | Expected Nominal Return | Expected Risk (Volatility) |
|--------------------------------------|-------------------------|----------------------------|
| U.S. Equity | 6.6% | 17.4% |
| Global Equity (Developed & Emerging) | 7.3 | 18.5 |
| International Equity (Developed) | 7.3 | 20.0 |
| Emerging Markets Equity | 7.7 | 30.0 |
| TIPS | 3.0 | 4.5 |
| Core Fixed Income (Market Duration) | 2.7 | 4.0 |
| High Yield Bonds | 3.7 | 12.0 |
| Bank Loans | 4.4 | 7.0 |
| Non-US Developed Bonds (Unhedged) | 1.7 | 10.0 |
| Emerging Market Bonds (USD) | 3.9 | 13.0 |
| Hedge Funds (FoF) | 3.7 | 9.0 |
| Real Estate (Total Market) | 5.5 | 12.5 |
| Private Equity | 9.0 | 24.0 |
| U.S. Inflation (CPI) | 2.3 | -- |

Current Assumptions (30-Year): Expected Returns and Volatility (as of June 30, 2017)

| Asset Class | Expected Nominal Return | Expected Risk (Volatility) |
|--------------------------------------|-------------------------|----------------------------|
| U.S. Equity | 6.6% | 17.9% |
| Global Equity (Developed & Emerging) | 7.4 | 19.5 |
| International Equity (Developed) | 7.3 | 20.5 |
| Emerging Markets Equity | 7.8 | 30.5 |
| TIPS | 3.5 | 4.5 |
| Core Fixed Income (Market Duration) | 3.5 | 5.0 |
| High Yield Bonds | 5.1 | 12.5 |
| Bank Loans | 4.7 | 7.5 |
| Non-US Developed Bonds (Unhedged) | 2.8 | 11.0 |
| Emerging Market Bonds (USD) | 4.9 | 14.0 |
| Hedge Funds (FoF) | 4.2 | 10.0 |
| Real Estate (Total Market) | 5.5 | 12.5 |
| Private Equity | 9.0 | 24.5 |
| U.S. Inflation (CPI) | 2.3 | -- |

Projected Returns

| | Long-Term Policy Allocation | Annualized Return (10 Year Forecast) | Standard Deviation (10 Year Forecast) | Annualized Return (30 Year Forecast) | Standard Deviation (30 Year Forecast) |
|-------------------|-----------------------------|--------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| U.S. Equity | 29.0% | 6.6% | 17.4% | 6.6% | 17.9% |
| Non-U.S. Equity | 13.5 | 7.6 | 20.9 | 7.7 | 21.4 |
| Global Equity | 15.0 | 7.3 | 18.5 | 7.4 | 19.5 |
| Fixed Income* | 30.0 | 3.2 | 4.2 | 4.0 | 4.8 |
| Private Equity | 5.0 | 9.0 | 24.0 | 9.0 | 24.5 |
| Real Estate | 7.5 | 5.5 | 12.5 | 5.5 | 12.5 |
| Total Fund | 100.0% | 6.3% | 12.1% | 6.6% | 12.5% |

- Assumed rates for the Nebraska DB Plans, CBB Plans, and OSERS:
 - The Defined Benefit Plans' actuarial assumed rate was recently lowered from 8.0% to 7.5%
 - The Cash Balance Benefit Plans' actuarial assumed rate will be lowered from 7.75% to 7.5% in January of 2018
 - OSERS' actuarial assumed rate was recently lowered from 8.0% to 7.5%
- Lowering the actuarial assumed rates increases the probability that these rates of return will be achieved
- Given existing market conditions, meeting or exceeding 7.5% is still likely to prove challenging in our view

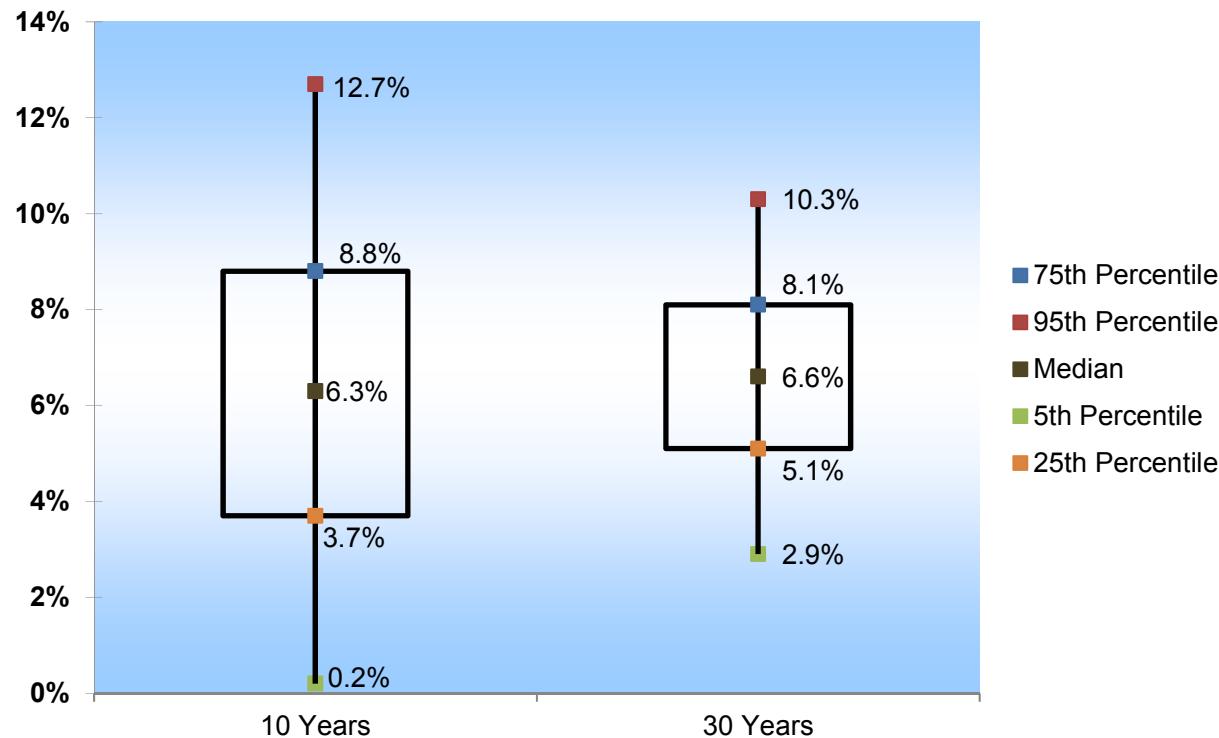
*Modeled as 20% core bonds, 1.5% international bonds, 3.5% high yield bonds, and 5% bank loans

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Projected Returns (cont'd)



- Based on our capital market assumptions and the defined benefit plans' asset allocation targets, the defined benefit plans have a bit better than a 1 in 3 chance of meeting or exceeding the assumed rate of return of 7.5% over the next 10-to-30 years

AHIC 10-Year Assumptions: How Expected Returns Have Evolved Over the Past 5 Years

| Asset Class | 6/30/17 | Expected Nominal Return | | | | | |
|-------------------------------------|---------|-------------------------|------|------|------|------|------|
| | | 2016 | 2015 | 2014 | 2013 | 2012 | 2011 |
| Large Cap U.S. Equity | 6.5% | 6.2% | 6.6 | 6.7% | 7.1% | 7.5% | 8.0% |
| Small Cap U.S. Equity | 6.7 | 6.4 | 6.8 | 6.9 | 7.3 | 7.7 | 8.2 |
| Global Equity | 7.3 | 7.0 | 7.1 | 7.1 | 7.5 | 8.3 | 8.9 |
| International Equity (Developed) | 7.3 | 7.0 | 7.1 | 7.2 | 7.3 | 8.4 | 9.1 |
| Emerging Markets Equity | 7.7 | 7.4 | 8.4 | 8.4 | 8.9 | 9.4 | 9.8 |
| Cash (Gov't) | 2.0 | 1.3 | 1.8 | 2.2 | 2.5 | 1.3 | 1.5 |
| Core Fixed Income (Market Duration) | 2.7 | 2.1 | 2.7 | 2.9 | 3.3 | 1.9 | 2.6 |
| High Yield Bonds | 3.7 | 4.1 | 5.9 | 4.2 | 4.6 | 3.9 | 5.9 |
| Hedge Funds Universe ¹ | 3.7 | 3.4 | 3.8 | 5.0 | 5.2 | 5.2 | 5.7 |
| Real Estate (Broad Market) | 5.5 | 5.4 | 6.6 | 7.0 | 7.2 | 7.4 | 7.3 |
| Private Equity | 9.0 | 8.2 | 9.0 | 9.0 | 9.3 | 9.7 | 9.8 |
| Inflation | 2.3 | 2.1 | 2.0 | 2.2 | 2.1 | 2.3 | 2.1 |

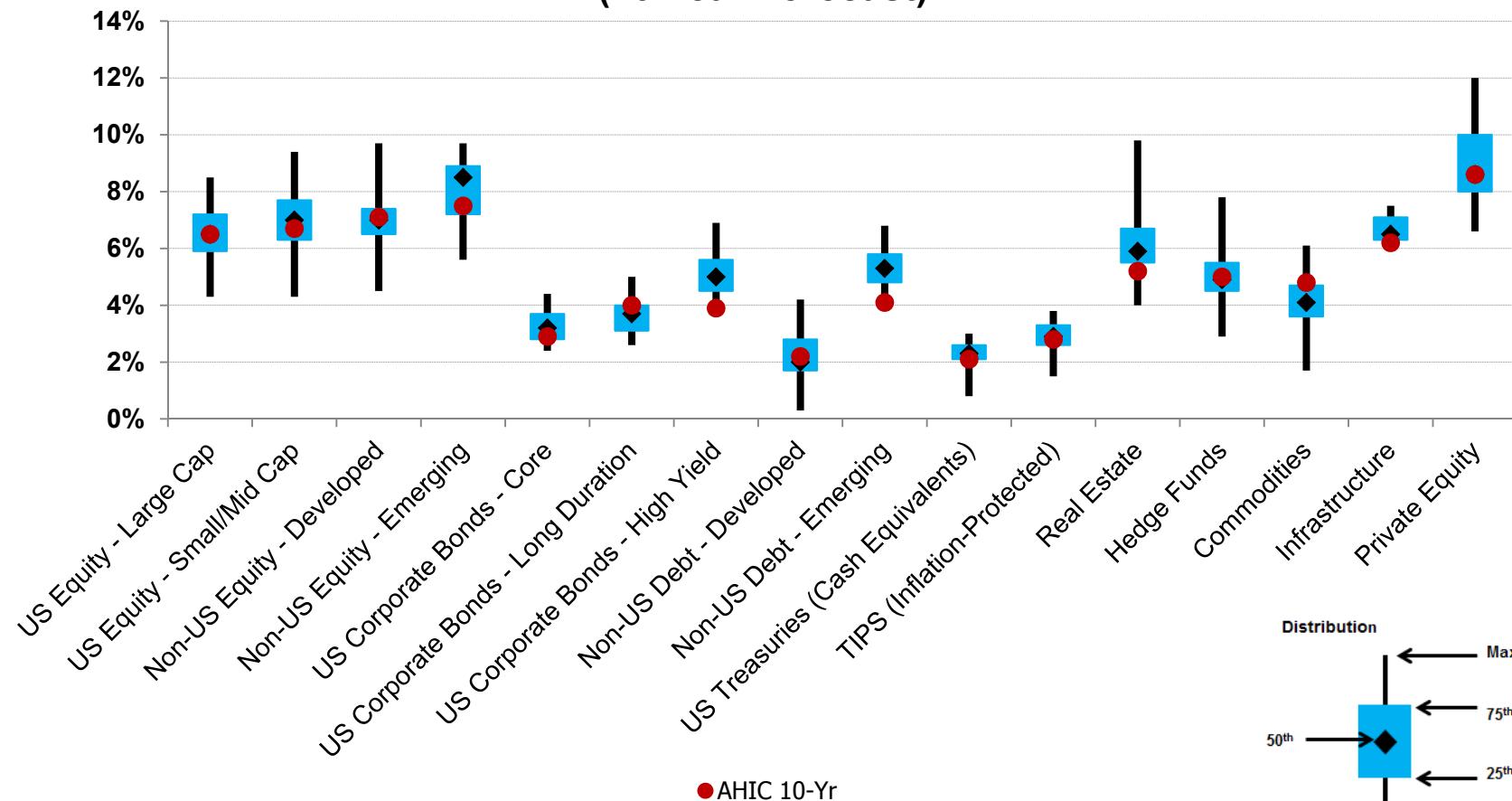
¹ Hedge Fund Universe assumptions are capital market assumptions for fund of hedge funds

- Our return expectations have generally decreased over the past five+ years

| Color Key |
|---------------------|
| Increased from 2011 |
| No Change from 2011 |
| Decreased from 2011 |

Ask 35 Consultants and...

Expected Geometric Returns by Asset Class (10 Year Forecast)



● AHIC 10-Yr

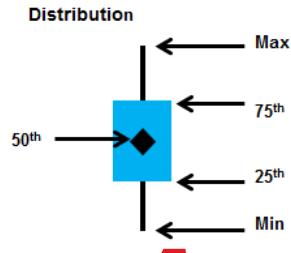
SOURCE: Horizon Actuarial survey of 2017 capital market assumptions from 35 independent investment advisors
Expected returns of the survey are annualized over 10-years (geometric).
AHIC expected returns are annualized over 10-years as of March 31, 2017

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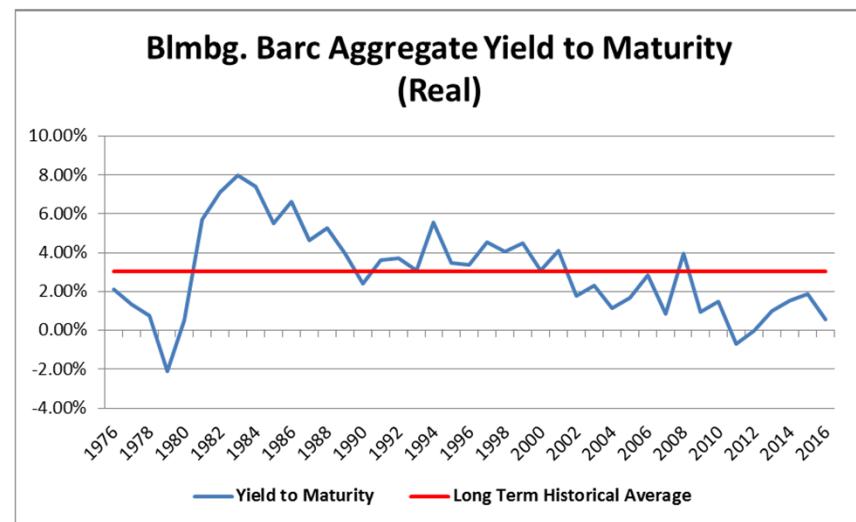
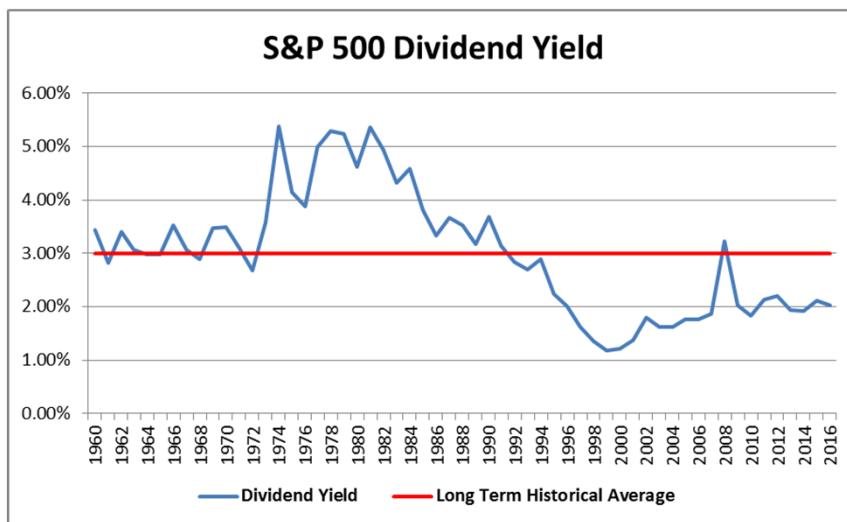
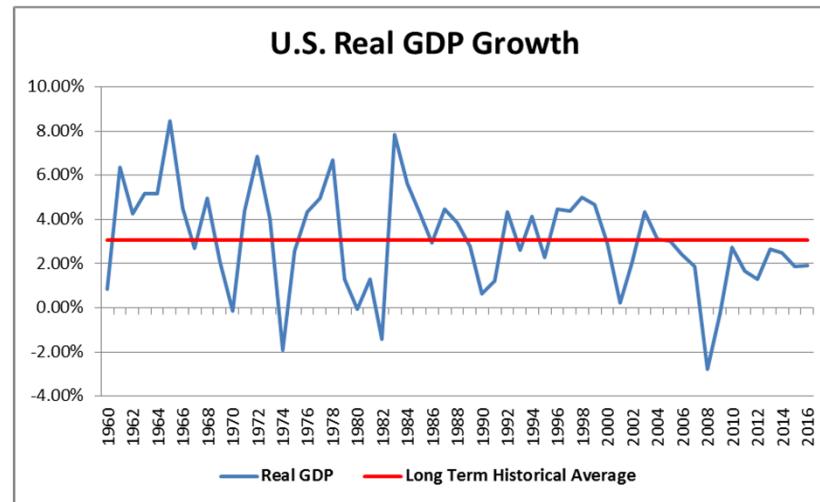
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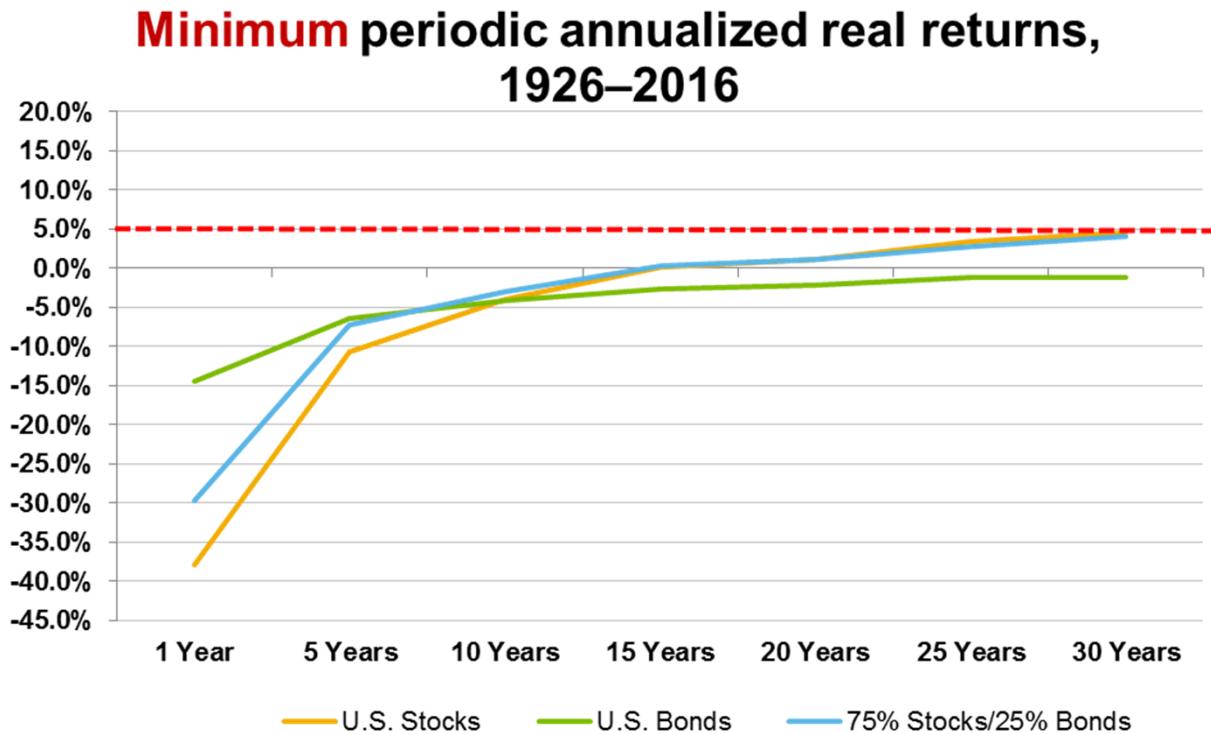
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What is Behind Subdued Return Expectations?

- Below average GDP growth, dividend yields and real bond yields contribute to subdued expectations for capital market returns in the coming years
- Improvement in these factors would improve the rate-of-return outlook



How Long Does One Have to Wait for 5% Real Returns?

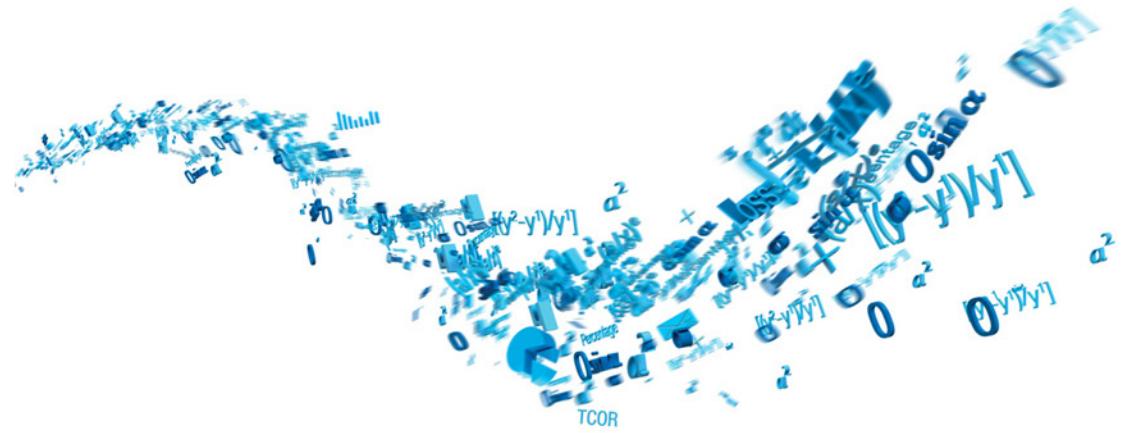


- This graph depicts the worst real returns from U.S. stocks, U.S. bonds, and a 75/25 mix of the two for historical time horizons of 1 to 30 years
- The 75/25 mix is a proxy for a diversified, equity-oriented portfolio (returns for other asset classes like real estate or commodities are not available going back to 1926)
- Conclusion: 5% real returns can be elusive for very long stretches of time

The Elusiveness of 5% Real Returns

| | U.S. Stocks | U.S. Bonds | 75% Stocks/25% Bonds |
|----------|----------------|---------------|----------------------------|
| 1 Year | -38.0% | -14.5% | -29.8% |
| 5 Years | -10.7% | -6.4% | -7.3% |
| 10 Years | -4.0% | -4.1% | -2.9% |
| 15 Years | 0.1% | -2.7% | 0.3% |
| 20 Years | 1.1% | -2.1% | 1.1% |
| 25 Years | 3.4% | -1.1% | 2.8% |
| 30 Years | 4.6% | -1.1% | 4.1% |

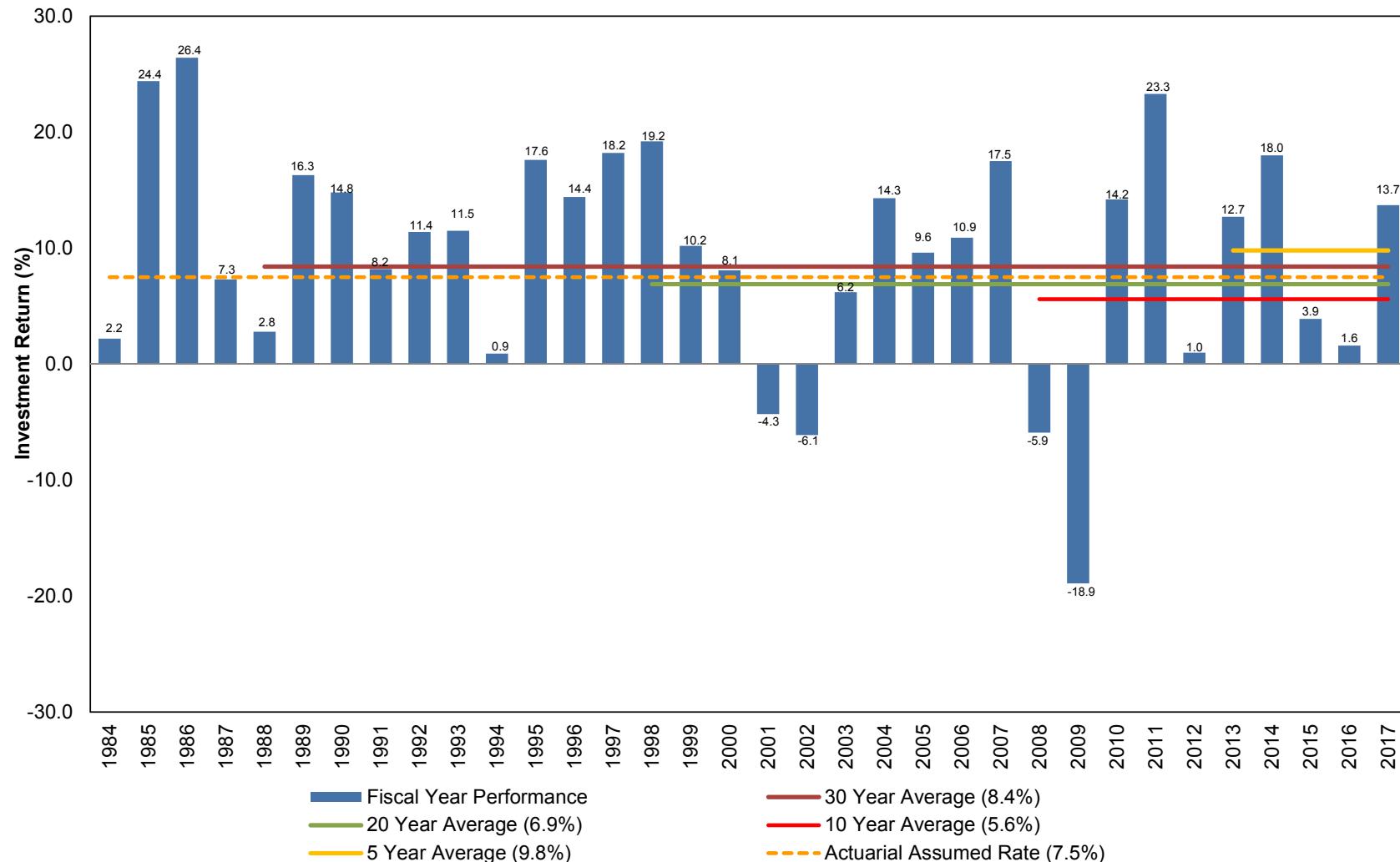
- This table depicts the data from the graph on the prior page
- There have been 30-year periods where a 75/25 mix has failed to provide a 5% real return
- Even U.S. stocks alone may fail to provide a 5% real return over a 30-year period



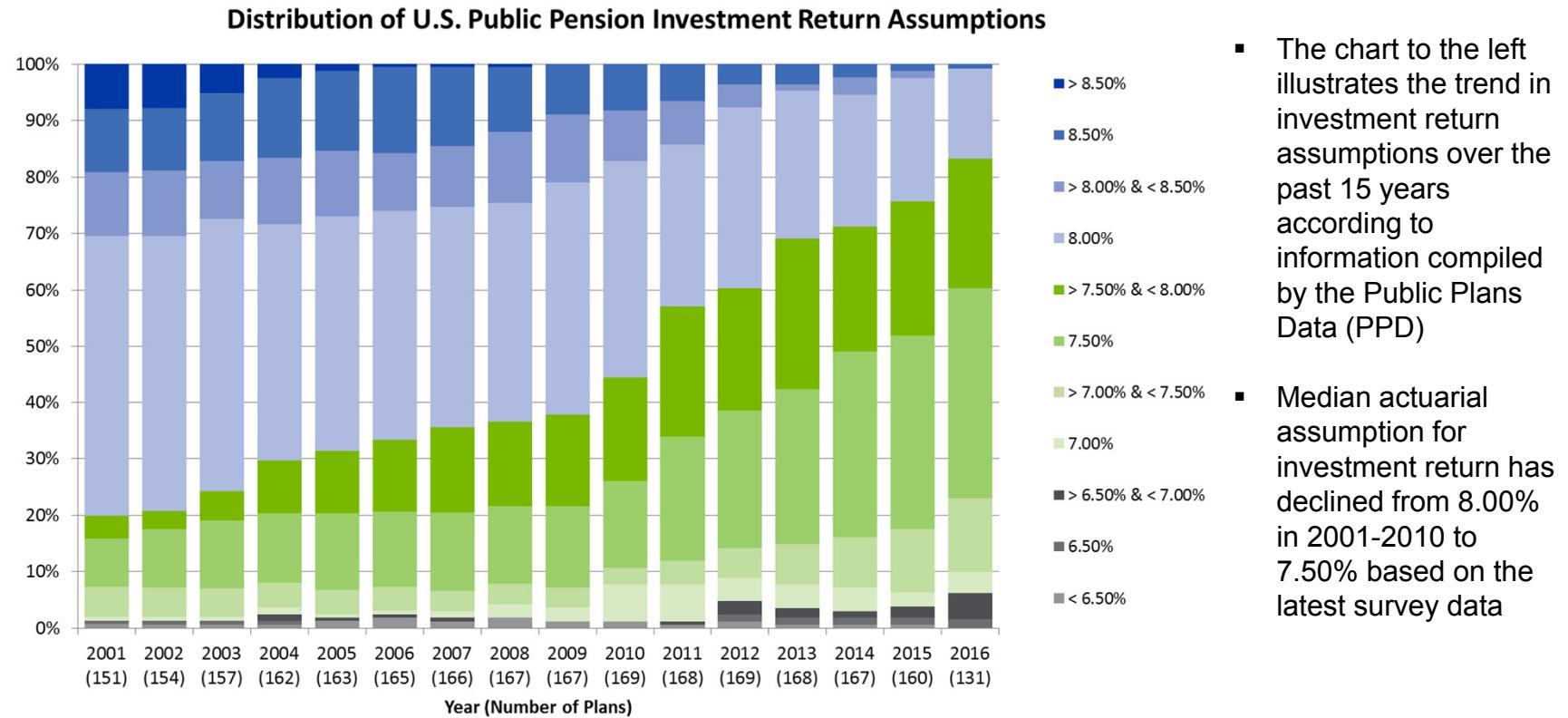
Appendices

Appendix I: NIC DB Plan Historical Fiscal Year and Cumulative Period Performance

NIC DB Plan Fiscal Year Performance As of June 30, 2017



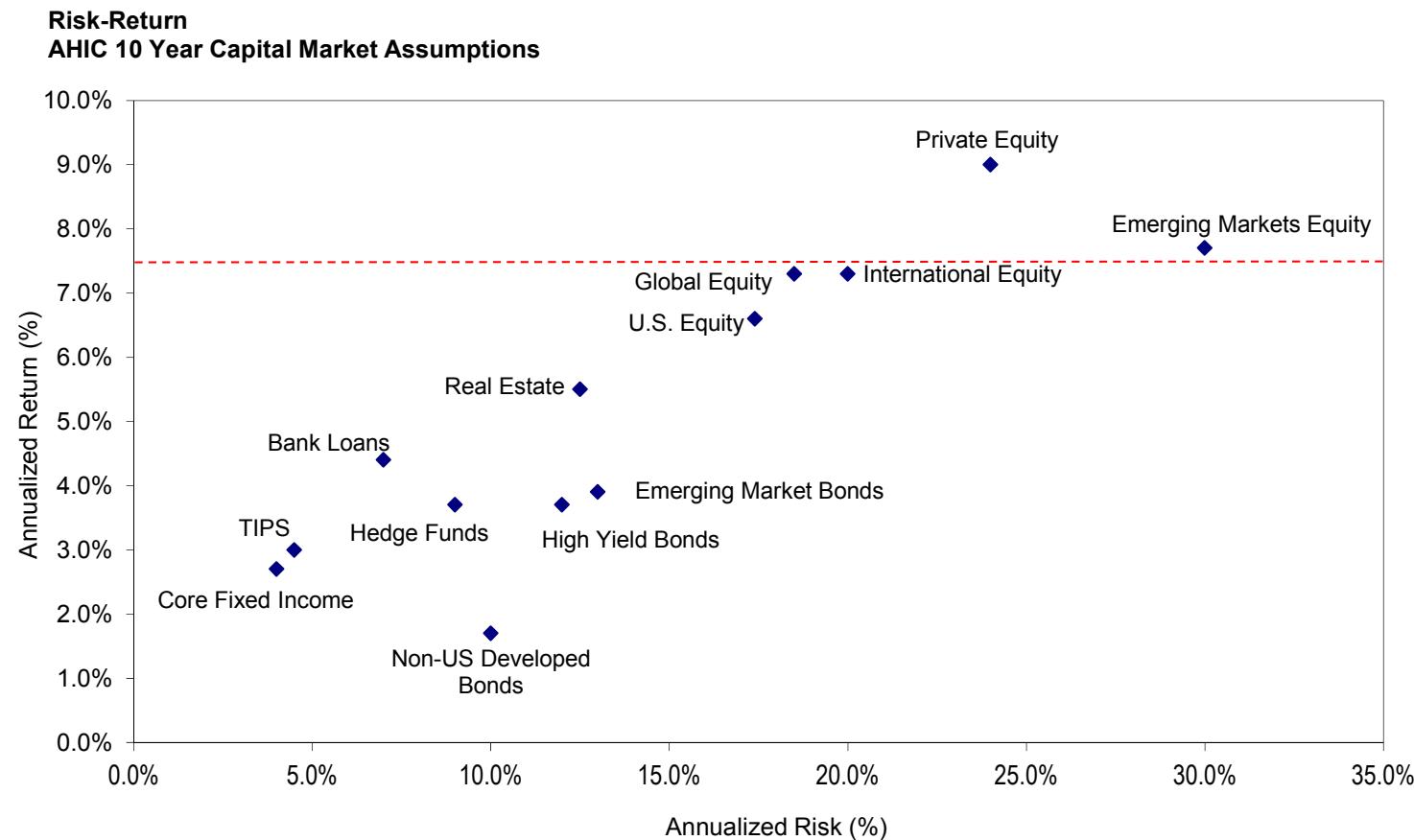
Appendix II: Expected Return on Asset Assumptions of Public Peer Funds¹



Sources: Public Plans Data (publicplansdata.org) as of July 2017; Expected Returns are the assumptions made by the plans included in the data set.

¹ Peers defined as public funds published within publicplansdata.org as of July 2017; Number of plans per year are shown in parentheses

Appendix III: AHIC Forward Looking Return Expectations by Asset Class



Appendix III: AHIC Forward Looking Return Expectations by Asset Class (cont'd)

